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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/026,711	12/27/2001	Akio Nagasaka	HITA.0151	9249
38327	7590	10/31/2005	EXAMINER	
REED SMITH LLP 3110 FAIRVIEW PARK DRIVE, SUITE 1400 FALLS CHURCH, VA 22042			LE, BRIAN Q	
			ART UNIT	PAPER NUMBER
			2621	

DATE MAILED: 10/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/026,711

Applicant(s)

NAGASAKA ET AL

Examiner

Brian Q. Le

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 1 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12/27/2001</u> . | 6) <input type="checkbox"/> Other: ____. |

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claims 11-18 are rejected under 35 U.S.C. 101 because "a program for processing of character search ... causing a computer" of claim 11 is non-statutory because the terminology "A program" alone has no set definition. A statutory product with descriptive material must include a positive recitation of the computer readable medium -- MPEP 2106, case law, USPTO policy, all are founded on this.

Claims not specifically addressed depend from indefinite antecedent claims.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-6, 9-10, and 15-18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Regarding claim 1, the concept of "detecting a character region in the image **based upon line widths of the character image** contained in the character region" (Emphasis added) is not supported in the specification. The original disclosure does not show how one skilled can detect a character region in the image based upon line widths of the character image contained in the character

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region. Referring to claim 4, the claims is not supported in the original disclosure specifically “a region where equi-luminance pixel strings **extending over a pre-designated length with luminance difference ... same image range**” (Emphasis added). Similar problem also found in claim 9. As to claims 5-6 and 10, the limitation regarding to “elastic matching of one-dimensional features strings” is not supported in the specification. The term “elastic matching” is not understood by one of the ordinary skilled in the art. Also to claim 15, the original disclosure does not teach “the concentrated region is decided by multiplying a pixel number in the x direction with a pixel number in the y direction”. For claim 16, the limitation “extracting steps includes extracting a character image feature string along one dimension of the character region or the character image of interest by **counting edges with a predetermined luminance change**” is not supported in the original disclosure. Referring to claim 17, the specification further does not show the method comprising “a step of **removing line border blurring by correcting a border pixel luminance value into a maximum or minimum luminance value of adjacent pixels**” (Emphasis added). Regarding claim 18, the original disclosure does not show the support for the step of “removing non-character background in the image by outlining the character region with a rectangle having a sufficient margin, then removing pixels outside of the rectangle and with the same colors and luminance values as the background”. The Applicant must clearly show (page number and line number) the support for the claimed limitation.

Claims not specifically addressed depend from indefinite antecedent claims.

Claim Objections

5. Claims 4-6 and 9-10 are objected to because these claims are very difficult to understand due to the use of confusing language. Appropriate correction is required. The prior art rejection based on the Examiner's best understanding.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 3-7, and 9-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Ohya et al. "Recognizing characters in scene images", I.E.E.E. Pattern Analysis and Machine Intelligence, Volume 16, Issue 2, Pages 214-220.

Regarding claim 1, Ohya teaches a method for searching at least one character image embedded in an image (abstract), comprising:

providing the image (abstract);

detecting a character region in the image (page 215, second column, first paragraph) based upon line widths of the character image contained in the character region (FIG. 1-FIG. 3);

extracting a first visual feature of the character region (FIG. 2, region number = 1);

providing a character image of interest (FIG. 1-FIG.3);

extracting a second visual feature from the character image of interest (FIG. 2, region number = 2);

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comparing the first visual feature with the second visual feature to determine a level of similarity (page 215, second column, first paragraph and page 217, first column); and outputting the character region with the level of similarity (FIG. 4).

Regarding claim 3, Ohya teaches the method for searching character image in an image wherein the step of detecting said character region on the basis of its shape determines, as a character, a region where equi-luminance pixel strings are locally concentrated, in the equi-luminance pixel strings, pixels having luminance differences in a pre-designated range are consecutive as long as a pre-designated extent (the detection of character if pixels of the detected character have similar pixel values which are different from the background pixels values) (FIG. 1-FIG.3 and page 215).

For claim 4, Ohya teaches the method for searching character image in an image wherein the step of detecting said character region on the basis of its shape determines, as a character, a region where equi-luminance pixel strings extending over a pre-designated length with a luminance difference within a pre-designated range in both vertical and horizontal directions are present at the same time within the same image range (page 215).

Regarding claim 5, Ohya teaches the method for searching character image in an image, wherein at the step of extracting the first visual feature of said character area and at the step of extracting the second visual feature of said character area (as discussed in claim 1), both the first visual feature and the second visual feature to be extracted are one-dimensional feature strings (FIG. 1-3 discloses the extraction in one-dimension) in which the numbers of edges in the vertical direction obtained by binarization of character regions and character strings are arrayed horizontally (FIG. 1), and the step of determining a level of similarity determines the

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level of similarity by elastic matching (calculate similarity) of one-dimensional feature strings both of which constitute the first visual feature and the second visual feature (page 215, second column).

For claim 6, Ohya further teaches the method for searching character image in an image wherein at the step of extracting the first visual feature of said character area and at the step of extracting the second visual feature from said character image (as discussed in claim 1), both the first visual feature and the second visual feature to be extracted are one-dimensional feature strings (FIG. 1-3 discloses the extraction in one-dimension) where the numbers of edges in the horizontal direction obtained by binarization of character regions and character strings are arrayed vertically (FIG. 1), and the step of determining a level of similarity determines the level of similarity by elastic matching of one-dimensional feature strings both of which constitute the first visual feature and the second visual feature (similarity calculation) (page 215, second column).

For claim 7, please refer back to claim 1 for the teaching. In addition, Ohya teaches a mean for detecting a character region from the frame of the entered image on the basis of its shape (FIG. 1-3). And an output means for outputting as the result of search the character region matching the visual features in respect of which the level of similarity has been determined or a frame of image containing the region (page 215; FIG. 1-4 and page 217, first column, first paragraph).

For claim 9, please refer back to claim 4 for further teachings and explanations.

For claim 10, please refer back to claims 5-6 for further teachings and explanations.

For claim 11, please refer back to claims 1 and 7 for further teachings and explanations.

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Regarding claim 12, Ohya discloses the method whereby the step of detecting said character region includes extracting lines with a width in a specific range and extracting a concentrated region of the extracted lines as said character region (FIG. 1, FIG. 2 and page 216, B. Detecting Character Candidate Regions).

For claim 13, please refer back to claims 3 and 4 for the teachings and explanations.

For claim 14, Ohya also discloses the method whereby the line width is taken in vertical and horizontal directions (FIG. 1 and FIG. 2).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 2 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohya et al. "Recognizing characters in scene images", I.E.E.E. Pattern Analysis and Machine Intelligence, Volume 16, Issue 2, Pages 214-220.

Regarding claim 2 and claim 8, Ohya teaches the display of both high level of similar and low level of similarity (page 217, first column). However, Ohya does not explicitly teach the method for searching character image in an image, wherein at the step of outputting said character region outputs character regions in the descending order of the level of similarity. The Examiner takes Office Notice that it would have been obvious to one skilled in the art that the level of similarity can be output at the descending or ascending order as a conventional

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displaying order. This type of output (descending/ascending) output would have been obvious to one of the ordinary skilled in the art to organize the output data/level of similarity.

10. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Ohya et al. "Recognizing characters in scene images", I.E.E.E. Pattern Analysis and Machine Intelligence, Volume 16, Issue 2, Pages 214-220 and further in view of Akira et al. "A method for recognizing character strings from maps using linguistic knowledge.", I.E.E.E. 1993, pages: 561-564.

Regarding claim 15, Ohya does not explicitly teach the concept of concentrated region is decided by multiplying a pixel number in the x direction with a pixel number in the y direction. However, Akira teaches a method of searching/recognition of character image embedded in an image (character from maps of various figures) (abstract) wherein concentrated region (pixel density) is decided by multiplying a pixel number in the x direction with a pixel number in the y direction (page 562, first column, 3.1 Character Candidates Extraction). Modifying Ohya's method of searching character image embedded in an image according to Akira would be able to one of the ordinary skilled in the art to determine the concentration of the image region by multiplying a pixel number in the x direction with a pixel number in the y direction. This would improve processing and therefore, it would have been obvious to one of the ordinary skill in the art to modify Ohya according to Akira.

Not in the Prior Arts

11. Claims 16-18 are not found in the prior arts.

CONCLUSION

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13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Q. Le whose telephone number is 571-272-7424. The examiner can normally be reached on 8:30 A.M - 5:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mancuso can be reached on 571-272-7695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BL
October 21, 2005



SAMIR AHMED
PRIMARY EXAMINER